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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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September 24, 2001

TO: Internal File

THRU: Pete H. Hess, Reclamation Engineer, Team Lead PHH by SM

FROM: Priscilla W. Burton, Soils Reclamation Specialist PB

RE: Division Order, West Ridge Resources, Inc., West Ridge Mine, C/007/041-DO00A-4

SUMMARY:

Construction of the portal at the West Ridge Mine did not go according to plan when burned coal was encountered. A highwall was created that caused the Division to question the reclaimability of the site.

On February 16, 2000, the Permittee submitted information relative to the As-Built configuration of the West Ridge Mine site (C/007/041-AM00B). The information was determined to be inadequate as noted in the March 28, 2000 Technical Analysis, and a Division Order for information was issued on April 6, 2000. In the Order, "as-constructed" designs were requested for the surface facilities area. Designs were to include operational and reclamation site configuration maps; designs of the water conveyance structures of the site; a slope stability analysis; and a detailed reclamation plan for the highwall.

The main soil issue identified previously in the AM00B Technical Analysis, was that backfilling the highwall to the original contour would be unstable, yet creation of a lesser slope would cover part of the experimental practice where topsoil is buried in the fill. The Division is of the opinion that the successful revegetation of the site takes precedence over the experimental practice. If necessary to achieve revegetated and stable site, the experimental practice area may be reduced in size.

The chronology of the Division Order is as follows:

Division Order		April 6, 2000
Initial Submittal	July 14, 2000	
Follow-up information	September 18, 2000	
Division Response		November 30, 2000
West Ridge Resources, Inc Response	March 16, 2000	
Follow-up information	July 2 & 14, 2001	
This Technical Analysis		September 21, 2001

TECHNICAL ANAYLSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: PL 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

Map 2-2, Minesite Order 1 Soil Survey identifies areas of Rock Outcrop – Rubble Land. As described in Appendix 2-2, the components of the unit are 45% rock outcrop (exposed sandstone and limestone); 35% rubbleland (areas of stones and boulders that are virtually free of vegetation); and 20% Travessilla gravelly loam. The vegetation growing on Rock Outcrop-Rubble Land is described in Appendix 2-1 as Utah juniper, pinyon, Salina wildrye, and galleta vegetation. In the Order I Survey of the mine site (Appendix 2-2 and Map 2-2) rubble lands or talus slopes were not separately mapped. Sample site AC-13 located on Map 2-2 in Rock was described as having five inches of soil over sandstone bedrock.

The highwall shown by cross-sections 23+00 to 26+00 on Maps 5-6 A & B and described in Appendix 5-9, West Ridge Mine Proposed Highwall Reclamation Plan, prepared by Agapito Associates, Inc, does not include any soil cover over the reclaimed slope. Statements number 4 and 5 in the (Agapito) Proposed Reclamation plan read as follows:

> *In order to help ensure the minimum 1.3 static safety factor over this height and angle, the surface of the highwall backfill will not be covered with soil, and will not be revegetated soil. Soil covering for overall vegetation and even "pocket'*

vegetation may result in eventual filling of the voids in the backfill and affect the free-draining nature of the fill, thus reducing the safety factor.

The reclaimed highwall will have the appearance of a "talus slope", which is compatible with other slopes in the area.

In Attachment A of Appendix 5-9, the slope stability report the consultant recommended that the reclaimed slope should be free of vegetation or soil, but if vegetation is needed then small pockets should be created and filled with bentonite and then soil (refer to item #4 on page 8 of the Attachment).

In fact, the soil in the location of the highwall was specified on Map 2-2 as Midfork very stony fine sandy loam 10 – 50% slopes. This soil is described as existing in "the densely vegetated south slope (north-facing slope) of the right fork drainage." Present vegetation is Douglas-fir and snowberry. Components of the Midfork unit are 75% Midfork, 10% rubbleland, 10% Commodore, and 5% Rock Outcrop. Midfork is deep to very deep, well drained with an effective rooting depth of 60 inches or more. Sample site AC-14 (located in the vicinity of the highwall) is described as having a seven inch topsoil layer (with 17 – 35% rock fragments) overlying a very cobbly sandy loam subsoil (with up to 40% rock fragments). Eighteen inches of soil were recommended for salvaged from the Midfork soil on this slope (page 18, Appendix 2-2) below this depth, rock fragments exceeded 40%. It was also noted on page 15 of Appendix 2-2 that only the Midfork soils could be salvaged and that small areas of rubbleland were unsuitable for salvage.

Since, the Permittee's proposal is to reclaim the highwall area to a "talus slope," *which is compatible with other slopes in the area,* the identification of talus slopes or rubblelands in the Order I soil survey is required. This will enable the Division to determine whether a talus configuration devoid of vegetation will blend in with the existing landscape. Otherwise, the permittee must address the necessary requirements to revegetate the reclaimed slope.

Findings:

The information provided is not adequate to support the proposed reclamation plan. Prior to approval the Permittee must submit the following in accordance with

R645-301-222, Include in Appendix 2-2, Soil Resource Assessment West Ridge Mine Area Carbon County, Utah, and on Map 2-2, Minesite Order 1 Soil Survey, an areal assessment of rubbleland or talus slopes.

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Removal and Storage

This submittal revises page 30 of Appendix 5-5 to state that "In the left fork, the secondary topsoil storage area (ASCA Y) has been eliminated. This area is an optional topsoil storage site and is to be used only on an as-needed basis." The approved MRP must be modified in the following locations if this statement is approved:

- The revision of Map 2-2, Minesite Order 1 Soil Survey to reflect the elimination of the secondary topsoil storage area (ASCA Y) has also eliminated the sample site locations for acid/toxic information to be gathered over the next five years. These sample site locations and the commitment to sample the soil of the operations pad over the next five years is described in the Annual Report year 2000.

- The revision of Map 2-4, Topsoil Storage Area should indicate actual volumes of soil recovered and stored in the topsoil storage area, not the projected or "proposed" volume.

Topsoil Substitutes and Supplements

Borrow area soils have been identified on page 2-14 of the MRP and in Appendix 2-4. Map 2-4 locates the borrow soils and provides reclamation contours for the borrow site.

Findings:

The As-Built maps submitted are not adequate and do not satisfy the operations plan topsoil and subsoil requirements of the Regulations. Prior to approval the Permittee must submit the following in accordance with

R645-301-230, Include in the legend and on the Map 2-2, Minesite Order 1 Soil Survey, the three sample sites for acid/toxic information and on Map 2-4, Topsoil Storage Area, indicate the actual volumes of soil recovered and stored in the topsoil storage area, not the projected or "proposed" volume.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

EXPERIMENTAL PRACTICES MINING

Regulatory Reference: 30 CFR Sec. 785.13; R645-302-210, -302-211, -302-212, -302-213, -302-214, -302-215, -302-216, -302-217, -302-218.

Analysis:

The permit for the West Ridge Mine includes provisions for an experimental practice (described in Appendix 2-6) where topsoil was preserved in place rather than being salvaged. The Office of Surface Mining, Reclamation and Enforcement and the Division approved this practice believing it would offer at least as much environmental protection as traditional soil salvage. The mining and reclamation plan included very specific steps needed for this practice to succeed.

In the bottom of C Canyon, soil was left in place rather than being salvaged prior to mining (see Map 2-2 for an outline of the experimental practice area). This soil was covered either with geotextile or with strips of flagging to mark it. As shown on Map 2-5, twenty to thirty feet of fill was placed on top of the soil, and the mine facilities were built on top of the fill. Reclamation plans were to remove the fill and re-expose the topsoil.

In the approved mining and reclamation plan, the Permittee demonstrated these cuts could be reclaimed to the same contour existing prior to mining. This was necessary because if the slopes had to be less steep, they would cover the soil in the experimental practice area.

This submittal shows on Map 5-9 that the geotextiled soil will be re-exposed and reclamation contours will match pre-existing contours in the highwall area as described by cross-sections 23+00 to 26+00 on Maps 5-6 A & B.

In order to meet the requirements of the R645 coal rules relative to revegetation and the long term static safety factor, it may be necessary to reconfigure the reclamation plan for the highwall area. If the slope has to be less steep, it would cover part of the experimental practice area where topsoil is buried. This could be allowed if the buried topsoil is first recovered from beneath C canyon. Alternatively, the borrow area soils (described in Appendix 2-4) could be utilized to reclaim the slope and the experimental practice area would be reduced.

Findings:

Information provided in the proposal is adequate to meet the experimental practice requirements of the Regulations.

RECCOMENDATIONS:

The present submittal does not show any effect to the experimental practice soils. If the Division's Engineer requires adjustments to the slope angle, then the reclamation plan must be revised concerning soil salvage from the experimental practice area. One possibility is to reduce the area of experimental practice. Another is to salvage the experimental practice soil for use prior to reclamation of the highwall. A third is to utilize soil from the borrow area in case of a deficit. If reduction of slope and encroachment upon the experimental practice is contemplated, these alternatives must be evaluated.

Slope stability and revegetation of the site take precedence over the experimental practice. If necessary, the experimental practice area may be reduced to achieve successful revegetation of the site.

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